

REMARKS

Claims 4, 23 and 28 are pending. Claim 4 has been amended. Claims 1-3, 5-9, and 11-12 were cancelled. Claims 10 and 13 – 22 were withdrawn. Claim 28 has been added.

Claim 4 has been amended to clarify the claimed subject matter and to recite “wherein the at least one bridge is exposed within at least one of the recesses.” Support for this amendment can be found, for example, in FIGs. 1D and 2D. No new matter has been added.

Independent claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lin et al. (U.S. Patent No. 5,273,938) in view of Fjelstad (U.S. Patent No. 6,001,671). Applicant respectfully disagrees. Specifically, the Office Action fails to establish a “clear and particular” motivation to combine the cited references. *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998); *Teleflex, Inc. v. Ficosa North Am. Corp.*, 63 USPQ2d 1374 at 1387 (Fed. Cir. 2002).

FIG. 3 of the Lin et al. patent illustrates two semiconductor dies 15, 17 that are coupled by wire bonds 18 to conductive traces 13. The dies, wire bonds and conductive traces are covered by an insulating resin 20. As acknowledged by the Office action, the Lin et al. patent does not disclose “a plurality of recesses in a rear surface of said insulating resin, the rear surface of said first and second die pad and said external connecting electrodes being exposed within said recesses” as recited in pending claim 4.

The Office action relies on the Fjelstad patent for its disclosure relating to partial removal of a polymer sheet 100' to expose the back surface of the pads' 110' and the conductive region 115' below the semiconductor chip 120 (FIG. 2E).

There would have been no motivation to combine those disclosures in the manner suggested by the Office action. According to the Lin et al. patent, a transfer film 12 (FIGS. 1 and 2) is used when the encapsulating resin is provided to form the package body 20. Various encapsulation processes may be used, but as explained by the Lin et al. patent:

In each of these encapsulating operations, the resin material is formed on one side of transfer film 12; that is, the transfer film, at this stage of the process, defines one side of

the package. The resin material thus surrounds the semiconductor die, the wire bonds, and one side of the pattern of conductive traces, plus any additional electronic components which may be attached to the conductive traces.

Following the first encapsulation operation, as illustrated in FIG. 2, transfer film 12 is peeled or removed from the surface of the encapsulated device leaving one surface of the conductive traces exposed and available to provide electrical contact to the semiconductor die. In forming the pattern of conductive traces on transfer film 12, for example by applying a layer of electrolytic copper foil to the transfer film, it is especially advantageous if the surface of the foil which is to contact the transfer film is smooth and the opposite side is rough. The smooth surface facilitates the peeling away of the transfer film after the encapsulation operation and the rough surface enhances the adherence of the resin material to the pattern of conductive traces.

(Col. 4, lines 1-22) (Emphasis added). After removal of the transfer film 12, the bottom surface of the resin, the bottom surface of the die receiving portions 19, and the bottom surface of the conductive traces 13 form a substantially continuous, flat and smooth surface (*see* FIGS. 2 and 3).

In view of the use of the transfer film 12 and its subsequent removal according to the Lin et al. patent, it would have made no sense to try and somehow incorporate the techniques of the Fjelstad patent. Indeed, in order to form recesses as recited in pending claim 4, additional resin material would somehow have had to have been added after removal of the transfer film 12. There would have been no motivation for a person of ordinary skill in the art to do that.

For at least these reasons, Applicant submits that claim 4 should be allowable.

Furthermore, because claim 23 and new claim 28 both depend from claim 4, they too should be allowable for at least the same reasons as claim 4.

Furthermore, neither the Lin et al. patent nor the Fjelstad patent discloses or suggests a bridge that is exposed within a recess in the insulating resin as now recited by amended claim 4. This feature may, in certain instances, reduce the possibility that a short circuit develops between the bridge and an adjacent conductive element. Furthermore, it might also prevent the bridge from being peeled away from the insulating resin or being otherwise damaged.

For these additional reasons, claim 4 and dependent claims 23 and 28 should be allowed.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicant : Noriaki Sakamoto et al.
Serial No. : 09/821,361
Filed : March 29, 2001
Page : 12 of 12

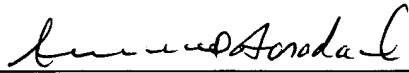
Attorney's Docket No.: 10417-074001 / F51-
129328M/SMI

CONCLUSION

In view of the above amendments and remarks, Applicant respectfully requests withdrawal of each of the rejections and allowance of the application. No fee is believed due, but if there is a fee deficiency, please charge Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/14/04



Samuel Borodach
Reg. No. 38,388

Fish & Richardson P.C.
Citigroup Center
52nd Floor
153 East 53rd Street
New York, New York 10022-4611
Telephone: (212) 765-5070
Facsimile: (212) 258-2291